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Electricity Pricing: Choices For The 80's

American Attitudes on Electricity Pricing and Economic Growth

Survey Conducted by
Cambridge Reports, Inc.
For Union Carbide Corporation

OHIO

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Preface

Electricity has become an issue of increasing public concern. After decades of *declining* prices, rapid increases in charges to all electricity consumers occurred during the 1970s. Higher costs incurred by the utilities—especially the rapid escalation of the cost of fuel needed to generate electricity—have made it necessary for utilities to increase the rates they charge for electricity sold to factories, stores, and homes.

Since 1972, the price charged for each unit of electricity used by industry has increased almost *twice* as much as the price charged for each unit used by residential consumers. Electricity rates to industry rose nearly 20% in 1980, putting an onerous burden on those industries that are electricity-intensive in their operations. But while these higher electricity charges to industry are almost inevitably passed along in the total price consumers pay for goods and services, Americans are more immediately concerned about the increases in the electricity bills they pay at home. So not surprisingly, the price of residential electricity has been the main factor in the public debate about electricity price structures.

What is not generally appreciated by the public is that the sharp increases in industry's electric rates are partly the result of rate-making policies that force industry to subsidize other types of users.

Inescapable increases in utility generating costs and higher rates for electricity users have led some federal and state policymakers to try to hold down rises in residential rates by moving away from the historical formula used to set electricity rates, a formula called "cost of service." The "cost of service" principle means that utilities charge each different class of customer what it actually costs to supply that class with the electricity it uses. Since it costs a utility more to bring one kilowatt hour of electricity to a single family home than to a large manufacturing facility because of economies of scale, home owners pay more under cost of service for that one kilowatt than do industrial customers.

Many different rate-making approaches have been proposed that would circumvent the cost-of-service principle. Almost all of these approaches require industry and commerce to subsidize other electricity users by having industry's rates raised disproportionately when compared to the rates of other classes of users. In Ohio, for example, residential rates rose 116% from 1972 to 1980. Commercial rates increased 130% and industrial rates escalated 209% in the same period.

Union Carbide and its employees, customers, shareholders and the communities in which we operate have a vital stake in seeing America develop sound electricity pricing policies. In 1980, Union Carbide purchased 10.4 billion kilowatt hours of electricity, enough to supply the entire State of California for one month. Over the

past 8 years, Union Carbide's sales increased about 200% while consumption of electricity increased only 20%, largely because of strenuous conservation efforts. In this same period, Union Carbide's electricity costs rose almost 400%, and we expect them to increase more than 1200% over the next 20 years. By the year 2000, we expect that we will be using more than twice as much electricity as we did in 1980 to keep pace with expansions of our businesses.

Because Union Carbide believes that public opinion is a key factor in determining both the direction and the success of public policies, we commissioned a public opinion survey in the Summer of 1981 to gauge the public mood about electricity pricing, electricity supplies, and the public's sentiment on electricity pricing policy choices. Since electricity policies are decided at the state as well as at the national level, we also commissioned in-depth surveys in six states where Union Carbide has major operations—Connecticut, West Virginia, Alabama, Louisiana, Ohio, and California.

To test the implications of various electricity pricing approaches on industry, a battery of questions were asked relating pricing policies to economic growth, jobs, and the prices people pay for what industry produces. Most Americans say they do not want electricity pricing practices to stand in the way of economic growth in the areas in which they live.

- More than 7 out of 10 Ohioans recognize that industry pays attention—3 in 10 saying "a lot of attention"—to what the electric rates are when making a plant location decision.

- Approximately 6 out of 10 oppose charging industry more than it costs to supply them with electricity if it means that some companies might not expand their operations, move operations elsewhere, or that the number of new plants and jobs in their area would be reduced.

- About 8 out of 10 Ohioans recognize that the prices charged by industry are affected by what industry pays for electricity—one in four saying "a large effect." And nearly 6 out of 10 oppose raising industrial electrical rates, if, in fact, this did lead to increased prices for the goods and services industry produces.

The public's concern about the health of the American economy, reflected in this survey by their choice of policy alternatives that support economic growth, is consistent with the findings of three earlier surveys of public attitudes on economic issues sponsored by Union Carbide. We found in these surveys, conducted from late 1979 through early 1981, that Americans expressed strong and consistent concerns about our economy; had an awareness that America has to do a better job of competing in the world; and believed that government is the main institutional cause for the decline in the growth and competitiveness of our economy. The

results of these surveys reinforced findings of public opinion polls commissioned by others that showed that economic issues were the subjects most troubling to the public as the nation entered the new decade.

As the *Vital Consensus* (published in April, 1980) found, most Americans believed economic growth helped them personally and benefited the entire nation as well; they found growth highly desirable, but they were pessimistic about the likelihood of economic growth in the coming years. *Adversaries or Allies* (published in November, 1980) found almost universal agreement that our difficult economic problems—such as the high rate of inflation, rising energy costs, and inefficient governmental regulations—are exacerbated by needless conflicts among the various sectors of our society. And the public said they wanted all of our institutions—including government and business—to work together more closely to solve these problems. *The Emerging Consensus* (published in April, 1981) found continuing concern over the present state of the economy, general agreement that our economic problems were both a cause and a consequence of our present international trade difficulties, and a growing consensus that government and business must work together more closely if American industry is to become more competitive within a structure of international trade that is fair to all nations.

This fourth survey found most Americans continuing to select policy alternatives that would encourage industrial expansion, jobs, and sound economic growth. On the specific issue of electricity pricing, significant majorities concluded that their personal interests will be served best by the cost of service pricing approach.

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Union Carbide/Ohio

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Introduction

This is an analysis of a survey of public attitudes toward the problem of electricity supply and cost in Ohio and toward a number of possible electricity pricing policy options. The survey was conducted using a sample of 348 adults scientifically selected to reflect the attitudes of the entire over-18, non-institutionalized population of Ohio. All interviews were conducted by telephone on a confidential basis by trained, professional interviewers under the supervision of Cambridge Reports, Inc. field staff, between July 17 and July 29, 1981.

Objectives

This survey has the following objectives:

* To assess overall public awareness of and concern about the supply of electricity in Ohio;
* To measure current attitudes toward electric utilities and the rates they charge; and
* To determine attitudes toward various electric utility rate issues.

Methodology

The methods used in this survey were the same professional ones used in all Cambridge Reports, Inc. surveys. All interviews were conducted by trained, professional interviewers under the supervision of the Cambridge Reports, Inc. field staff and were returned to Cambridge for coding and data processing using modern computer methods.

Notes on analysis

In reading through the report, please keep in mind the following points:

* The marginals on demographic charts (the number to the left of each demographic designation) show the percentage that the group represents of the overall base population; when the marginal is 15% or less on charts where the base population is approximately 348, conclusions based on these responses should be made with caution, as the numbers are based on a sample size too small to be entirely reliable;

* A copy of the questionnaire appears in Appendix A, for quick referral;

* Demographic charts discussed, but not included, in the text are available upon request from the Union Carbide Corporate Communications Department;

* In some cases, tables and charts may not add to exactly 100% due to rounding.

Summary

This survey of the attitudes of Ohio residents toward electric utility issues was conducted simultaneously with a national survey using the same questionnaire. The full analysis of the national survey results can be found in the report "Public Attitudes about Electric Utility Issues." The present report highlights how the attitudes of Ohio residents revealed in the survey compare to the attitudes of the American public as a whole.

On the major points of the survey, we find that the views of the citizens of Ohio closely resemble those of all Americans. We do see two significant differences, however.

First of all, Ohioans have much more favorable perceptions than the public as a whole about the rise in electricity prices vis-à-vis the overall level of inflation during the last 15 years. They are significantly less likely than other Americans to see electricity costs rising faster than the cost of most other things.

The second difference is that Ohio residents are significantly more likely than other Americans to rate government regulations as an important factor in rising electricity costs.

As for attitudes toward cost-of-service pricing, the pattern in Ohio is similar to the national pattern. That is, Ohio residents support the overall concept of cost-of-service pricing, but are skeptical when they learn that industry might, as a result, pay a lower per unit price for electricity than residential customers. Only when they see possible benefits for themselves--in terms of lower prices for consumer goods or greater economic development--do they truly favor cost-of-service pricing as a practical choice.

The Problem of Electricity Supplies

The first part of our survey checked people's expectations about electricity supply problems in their area, both now and over the long term, and we then went on to ask people how they feel about various ways of ensuring adequate supplies of electricity.

The responses to these questions reveal no significant differences between the views of Ohio residents and the views of the American public as a whole. Like all Americans, people living in Ohio are much more concerned about the difficulty of ensuring electricity supplies in 10 years time than they are about the difficulty of maintaining supplies today. And, likewise reflecting the opinions of the public as a whole, citizens of Ohio strongly prefer to expand or extend electricity supplies by increased conservation and increased use of coal rather than by increased reliance on nuclear power.

As the first table shows, Ohioans are much more likely than other Americans to see electricity lagging behind other things in terms of cost increases over the last 15 years. By a four-to-one margin, Ohioans see price increases in general as greater than those affecting electricity.

Which do you think has gone up more since 1967--the cost of electricity or the cost of most other things?

	Cost of electricity	(Don't know)	Cost of most other things
National	29%	6	65
Ohio	18%	6	76

The demographic breakdowns show that, among Ohio residents, less-educated respondents are somewhat more likely than their better-educated counterparts to see electric rates rising faster than other prices. Women and older people are also slightly more likely than their respective counterparts to take this view. A complete demographic analysis follows.

Which do you think has gone up more since 1967--the cost of electricity or the cost of most other things?

1. COST OF ELECTRICITY 2. DK
3. COST OF OTHERS

		1.	2.	3.
Responses = 348				
MARGINALS		18	6	76
	18.PRICE BASED ON UTILITY'S COSTS			
31	TOTALLY	21	9	70
31	MOSTLY	21	3	77
32	SOMEWHAT	14	6	79
3	NOT AT ALL	17	0	83
3	DK	11	0	89
	27.SEX			
53	FEMALE	21	5	73
47	MALE	15	6	79
	28.EDUCATION			
15	SOME HIGH	23	9	68
46	HIGH GRAD	20	6	74
18	SOME COLLEGE	18	3	79
21	COLLEGE PLUS	11	5	84
0	DK	0	0	100
	29.INCOME			
14	0-9999	20	12	68
30	10-19999	18	2	80
47	20K AND OVER	18	4	78
8	REFUSED	21	18	61
	30.AGE			
42	18-35	16	1	83
30	36-55	18	7	75
27	55 AND OVER	23	12	66
1	REFUSED	0	20	80

Electric Utilities and Their Rates

The second part of our survey, which tested people's perceptions about electric rates and about the possible causes of rate increases, does reveal some notable differences between Ohio residents and the nation as a whole.

Ohioans are more likely than the nation as a whole to blame government health and safety regulations for rising electricity costs. As the table shows, a majority of Ohioans--7 points above the national figure--feel that regulations are a a very important cause of rising electric bills.

Here is a reason some people give for the rise in electricity prices during the last 5 years or so. Please tell me if you think this is a very important, somewhat important, not very important, or not at all important reason for rising electricity prices: the time it takes to meet environmental and health and safety regulations that are required by the government before a new power plant can be built.

	Very important	Some-what important	Not very important	Not at all important	(Don't know)
National	47%	35	12	5	2
Ohio	54%	31	10	3	1

Demographic breakdowns show that poorer and less-educated people are more likely than their counterparts to blame government regulation for rising electric rates. Older people are also much more likely than younger and middle-aged people to feel this way. A complete demographic analysis follows.

Here are reasons some people give for the rise in electricity prices during the last 5 years or so. Please tell me if you think each of these is a very important, somewhat important, not very important, or not at all important reason for rising electricity prices: the time it takes to meet environmental and health and safety regulations that are required by the government before a new power plant can be built.

1. VERY IMPT
2. SOMEWHAT IMPT
3. NOT VERY IMPT
4. NOT IMPT AT ALL
5. DK

		1.	2.	3.	4.	5.
Responses = 348						
MARGINALS		54	31	10	3	1
	18. PRICE BASED ON UTILITY'S COSTS					
31	TOTALLY	59	25	12	5	0
31	MOSTLY	54	31	9	4	2
32	SOMEWHAT	50	36	11	2	2
3	NOT AT ALL	33	50	8	8	0
3	DK	78	11	0	0	11
	27. SEX					
53	FEMALE	54	30	10	4	3
47	MALE	54	32	11	3	0
	28. EDUCATION					
15	SOME HIGH	75	17	4	2	2
46	HIGH GRAD	48	32	13	5	2
18	SOME COLLEGE	52	36	10	2	0
21	COLLEGE PLUS	51	34	11	3	1
0	DK	100	0	0	0	0
	29. INCOME					
14	0-9999	62	24	10	2	2
30	10-19999	53	30	11	4	2
47	20K AND OVER	53	32	11	3	1
8	REFUSED	50	36	4	7	4
	30. AGE					
42	18-35	47	35	14	3	1
30	36-55	55	33	8	4	1
27	55 AND OVER	66	23	6	3	2
1	REFUSED	40	20	20	0	20

Utility Rate Issues

As we noted earlier, Ohio exhibits the same attitudes as the nation as a whole toward cost-of-service pricing, which was the major focus of the last part of our survey. The next table shows that, on the most general question about cost-of-service pricing, Ohioans express virtually the same opinions as the national average.

Just in general, do you feel that the price of electricity to a consumer should be based totally, mostly, somewhat, or not at all on what it actually costs an electric utility to supply electricity to that consumer?

	Totally	Mostly	Somewhat	Not at all	(Don't know)
National	28%	30	35	4	3
Ohio	31%	31	32	3	3

Demographic breakdowns show that men in Ohio are somewhat more favorable than women toward the idea of basing rates totally on cost; women show a slight preponderance in the "mostly" category, though, thus canceling out much of the significance of this difference. A complete demographic analysis follows.

Just in general, do you feel that the price of electricity to a consumer should be based totally, mostly, somewhat, or not at all on what it actually costs an electric utility to supply electricity to the consumer?

1. TOTALLY
2. MOSTLY
3. SOMEWHAT
4. NOT AT ALL
5. DK

		Responses = 348	1.	2.	3.	4.	5.
		MARGINALS	31	31	32	3	3
		18. PRICE BASED ON UTILITY'S COSTS					
31		TOTALLY	100	0	0	0	0
31		MOSTLY	0	100	0	0	0
32		SOMEWHAT	0	0	100	0	0
3		NOT AT ALL	0	0	0	100	0
3		DK	0	0	0	0	100
		27. SEX					
53		FEMALE	27	33	34	3	3
47		MALE	36	28	30	4	2
		28. EDUCATION					
15		SOME HIGH	36	21	40	0	4
46		HIGH GRAD	30	31	35	3	3
18		SOME COLLEGE	30	25	34	7	5
21		COLLEGE PLUS	34	42	18	5	0
0		DK	0	100	0	0	0
		29. INCOME					
14		0-9999	28	30	40	0	2
30		10-19999	33	30	29	6	2
47		20K AND OVER	33	30	30	3	3
8		REFUSED	21	36	36	4	4
		30. AGE					
42		18-35	26	32	35	6	1
30		36-55	35	26	31	4	5
27		55 AND OVER	34	34	29	0	2
1		REFUSED	40	40	20	0	0

APPENDIX A

The Questionnaire

On a scale from "1" to "7," where "1" means "not difficult at all" and "7" means "very difficult," I would like you to tell me how difficult you feel the problem of providing an adequate and reliable supply of electricity in your area is. The more difficult you feel the problem is, the higher the number you would give.

1. How difficult today is the problem of providing an adequate and reliable supply of electricity in your area?

	Not difficult at all						Very difficult	[DON'T KNOW]
	1	2	3	4	5	6	7	8
National	25%	14	18	14	16	4	6	1
Ohio	26%	16	20	13	14	3	5	2

2. How difficult 10 years from now do you think the problem of providing an adequate and reliable supply of electricity will be in your area?

	Not difficult at all						Very difficult	[DON'T KNOW]
	1	2	3	4	5	6	7	8
National	11%	7	11	12	17	14	24	5
Ohio	13%	8	11	7	20	15	19	6

I'm going to read you some proposals for ways of providing an adequate supply of electricity, and I'd like you to tell me whether you strongly favor, favor, oppose, or strongly oppose each one.

3. Increasing our use of coal to generate electricity

	Strongly favor	Favor	Oppose	Strongly oppose	(Don't know)
National	23%	57	13	5	2
Ohio	33%	51	11	4	1

4. Building more nuclear power plants to generate electricity

	Strongly favor	Favor	Oppose	Strongly oppose	(Don't know)
National	15%	32	29	21	2
Ohio	11%	37	27	22	2

5. Increased conservation of electricity by individual consumers, business, and industry

	Strongly favor	Favor	'Oppose	Strongly oppose	(Don't know)
National	40%	46	8	3	2
Ohio	34%	49	8	6	3

6. On a scale from "1" to "7," how would you rate your electric company overall if "1" means "very, very bad" and "7" means "very, very good"?

	Very, very bad						Very, very good	[DON'T KNOW]
	1	2	3	4	5	6	7	8
National	5%	3	11	18	27	19	18	--
Ohio	5%	3	8	16	29	17	22	--

7. Approximately what is your average monthly electric bill?

	$0-25	$26-50	$51-75	$76-100	$101-125	$126-150	$151-175	$176-200	Over $200	(Don't know)
National	19%	37	17	12	4	2	1	1	2	5
Ohio	21%	39	16	8	2	2	2	1	1	8

8. Generally, would you say that the rates your electric company charges are very high, somewhat high, about right, somewhat low, or very low?

	Very high	Somewhat high	About right	Somewhat low	Very low	(Don't know)
National	28%	38	29	3	1	1
Ohio	27%	39	29	3	--	1

9. Which do you think has gone up more since 1967--the cost of electricity or the cost of most other things?

	Cost of electricity	(Don't know)	Cost of most other things
National	29%	6	65
Ohio	18%	6	76

10. Do you think your electric company sets its own rates, or does a state commission set the rates that your electric company charges?

	Electric companies set own rates	(Don't know)	State commission sets rates
National	42%	9	49
Ohio	45%	8	47

Here are reasons some people give for the rise in electricity prices during the last 5 years or so. Please tell me if you think each of these is a very important, somewhat important, not very important, or not at all important reason for rising electricity prices.

11. Increased costs of fuel used to generate electricity

	Very important	Somewhat important	Not very important	Not at all important	(Don't know)
National	54%	38	5	2	1
Ohio	51%	42	4	2	1

12. Dependence on imported oil as a fuel for generating electricity

	Very important	Somewhat important	Not very important	Not at all important	(Don't know)
National	46%	31	15	7	1
Ohio	41%	30	19	9	1

13. The time it takes to meet environmental and health and safety regulations that are required by the government before a new power plant can be built

	Very important	Somewhat important	Not very important	Not at all important	(Don't know)
National	47%	35	12	5	2
Ohio	54%	31	10	3	1

14. The cost of controlling and decreasing air and water pollution caused by power plants

	Very important	Somewhat important	Not very important	Not at all important	(Don't know)
National	45%	35	15	3	2
Ohio	48	36	11	3	2

15. The slow-down in constructing nuclear power plants

	Very important	Somewhat important	Not very important	Not at all important	(Don't know)
National	33%	33	23	7	4
Ohio	33%	31	24	8	4

16. The slow pace of conversion to greater use of coal to generate electricity

	Very important	Somewhat important	Not very important	Not at all important	(Don't know)
National	46%	35	13	4	3
Ohio	45%	37	11	5	2

17. Considering all the different ways you use electricity in your daily life and the benefits you receive for what you pay for electricity, do you feel that the rates your electric company charges are very high, somewhat high, about right, somewhat low, or very low?

	Very high	Somewhat high	About right	Somewhat low	Very low	(Don't know)
National	22%	44	30	3	1	1
Ohio	19%	46	30	3	1	1

18. Just in general, do you feel that the price of electricity to a consumer should be based totally, mostly, somewhat, or not at all on what it actually costs an electric utility to supply electricity to that consumer?

	Totally	Mostly	Somewhat	Not at all	(Don't know)
National	28%	30	35	4	3
Ohio	31%	31	32	3	3

19. Do you think that poorer people should pay less for the electricity they use or do you think that they should pay the same rates as other users?

	Pay less	(Don't know)	Pay the same
National	33%	2	64
Ohio	36%	3	61

20. It has been proposed that the government help poorer people pay for a certain basic amount of electricity. Would you strongly favor, somewhat favor, somewhat oppose, or strongly oppose such a program?

	Strongly favor	Somewhat favor	Somewhat oppose	Strongly oppose	(Don't know)
National	26%	34	20	19	1
Ohio	22%	35	22	20	2

21. In many parts of the United States industries that use a lot of electricity pay less than residential electricity users for each unit of electricity they use. Some say it is fair that industrial users pay less for each unit of electricity because it actually costs less to produce, transmit, and maintain this high volume, high voltage electrical service to industrial users than to provide electricity to residential users. Others say this is not fair. Even if it costs less to provide their service, they say industrial users should still pay the same rates as residential users because they can afford higher electricity rates more than residential users can. Assuming that it actually does cost less to provide electricity to industrial users, would you favor a system of charging industrial users less or would you favor charging industrial and residential users the same amount for each unit of electricity they use?

	Favor system of charging industrial users less	(Don't know)	Favor charging all users same amount for each unit of electricity
National	35%	2	63
Ohio	35%	1	64

22. How much effect do you think the electricity rates paid by industry have on the prices they charge consumers for the products they make? Do you feel that industrial electricity rates have a large effect on the prices paid by consumers for products and services, some effect, hardly any effect, or no effect at all?

	A large effect	Some effect	Hardly any effect	No effect at all	(Don't know)
National	25%	55	11	6	2
Ohio	27%	51	15	4	3

23. Some people say that making industrial users pay more for their electricity will help hold down electricity rates for residential consumers. Others say that while raising rates for industrial users may hold down residential electricity rates, consumers won't gain anything in the long run because higher industrial rates will ultimately just be passed along to consumers in the form of higher prices for products and services. Would you strongly favor, somewhat favor, somewhat oppose, or strongly oppose raising industrial electrical rates if in fact, this did lead to increased prices for the goods and services industries produce?

	Strongly favor	Somewhat favor	Somewhat oppose	Strongly oppose	(Don't know)
National	12%	27	29	30	3
Ohio	10%	29	29	28	3

24. Let's say a company is deciding where to build a new factory and has two or three different areas or regions under consideration. Assuming all other costs are relatively equal, do you think the company pays a lot of attention, as they make their plant location decision, to what the electric rates are in each location, some attention, only a little attention, or no attention at all?

	A lot of attention	Some attention	Only a little attention	No attention at all	(Don't know)
National	28%	44	15	12	1
Ohio	30%	46	12	11	2

25. Thinking about this area--would you favor or oppose having industrial users of electricity pay more than it costs to supply them with the electricity they use--thus holding down the increase in residential rates--if this meant that some companies and factories would not expand their operations and increase jobs in this area or might actually move to other areas that have lower industrial electricity rates?

	Favor	(Don't know)	Oppose
National	37%	4	59
Ohio	34%	5	61

26. Let's say there was a clear choice--your own electric rates would go up less rapidly but industrial expansion and the number of new plants and jobs in your area would be reduced. If that were the choice, would you strongly favor, somewhat favor, somewhat oppose, or strongly oppose having industrial electricity users pay more than it costs to supply them with the electricity they use?

	Strongly favor	Somewhat favor	Somewhat oppose	Strongly oppose	(Don't know)
National	9%	26	35	28	3
Ohio	10%	24	34	28	3

I'd like to ask you a few last questions for statistical purposes only.

27. [OBSERVATION] Sex

	Female	Male
National	50%	50
Ohio	53%	47

28. What was the last grade you completed in school?

1. Some grade school (1-8)
2. Some high school (9-11)
3. Graduated high school
4. Technical/vocational school
5. Some college
6. Graduated college
7. Graduate/professional school
8. (Don't know)

	1	2	3	4	5	6	7	8
National	6%	8	37	2	21	17	9	--
Ohio	5%	10	43	3	18	15	6	--

29. In which of the categories I read is the total annual income of this entire household--of everyone living in this house? [READ RESPONSES]

1. $0-6,999
2. $7-9,999
3. $10-12,999
4. $13-14,999
5. $15-19,999
6. $20-24,999
7. $25,000 and over
8. (Refused)
9. (Don't know)

	1	2	3	4	5	6	7	8	9
National	8%	9	7	7	13	14	35	6	2
Ohio	7%	7	10	7	13	17	30	7	1

30. What is your age? [RECORD IN PROPER CATEGORY]

1. 18-25
2. 26-35
3. 36-45
4. 46-55
5. 56-65
6. Over 65
7. (Refused)

	1	2	3	4	5	6	7
National	17%	26	16	17	11	12	1
Ohio	18%	24	16	14	15	12	1

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